

Claims

1. A method of broadcasting data in a cellular communication system including first and second cells, comprising:
- 5 receiving data from a source;
- producing a first data stream comprising said data in the form of a series of bursts;
- producing a second data stream comprising the series of bursts such that, when the first and second data streams are broadcast in the first and second cells
- 10 respectively, start times of bursts in the second cell are synchronised with start times of corresponding bursts in the first cell;
- broadcasting the first data stream in the first cell; and
- broadcasting the second data stream in the second cell.
- 15 2. A method according to claim 1, wherein the second data stream is configured in accordance with first and second data transmission rates associated with the first and second cells respectively.
3. A method according to claim 2, wherein the step of producing the second
- 20 data stream further comprises:
- determining an additional data limit on the basis of the first and second data transmission rates such that, when an amount of additional data equal to said additional data limit is added to each burst in the series prior to broadcast, the start times of corresponding bursts broadcast in the first and second cells are
- 25 synchronised;
- and, if the additional data limit is greater than zero:
- receiving additional data from an additional data source; and
- incorporating an amount of additional data less than or equal to said additional data limit is added to each burst in the second data stream.

4. A method according to claim 3, wherein said amount of additional data is interleaved with said data in each burst.
5. A method according to claim 1, 2 or 3, wherein an additional burst
5 comprising said amount of additional data is appended to each burst.
6. A method according to claim 5, wherein start times of additional bursts broadcast in the second cell are synchronised with start times of bursts of said additional data broadcast in a third cell.
- 10 7. A method of broadcasting data in a cellular communication system including first and second cells, comprising:
receiving a series of data bursts from a source;
outputting a first data stream comprising the series of data bursts such that
15 when the first data stream is broadcast in the first cell and a second data stream comprising the series of bursts is broadcast in a second cell, start times of bursts in the first cell are synchronised with start times of corresponding bursts in the second cell; and
broadcasting the first data stream in the first cell.
- 20 8. A method according to claim 7, wherein the first data stream is configured in accordance with first and second data transmission rates associated with the first and second cells respectively.
- 25 9. A method according to claim 8, wherein the step of outputting a first data stream comprises:
determining an additional data limit on the basis of first and second data transmission rates associated with the first and second cells respectively such that, when an amount of additional data equal to said additional data limit is added to
30 each burst in the series in the first data stream prior to broadcast, the start times of bursts broadcast in the first cell are synchronised with the start times of corresponding bursts in the second data stream when broadcast in the second cell; and, if the additional data limit is greater than zero:

receiving additional data from an additional data source; and
multiplexing an amount of additional data less than or equal to said
additional data limit with each data burst in the first data stream, said amount being
less than or equal to said additional data limit.

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10. A method according to claim 9, wherein said amount is equal to the
additional data limit.

11. A method according to claim 9 or 10, wherein said amount of additional data
10 is interleaved with said data in each data burst.

12. A method according to claim 9 or 10, wherein said amount of additional data
is appended to each data burst.

15 13. A method according to any one of the preceding claims, wherein the start
times are synchronised so that transmissions of corresponding bursts in the first
and second cells begin simultaneously.

14. A method according to any one of the preceding claims, wherein the start
20 times are synchronised so that there is a fixed time period between the start time of
a burst in the first cell and the start time of a corresponding burst in the second cell.

15. A method according to any one of the preceding claims, wherein the
additional data comprises local data associated with the first cell.

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16. A method according to any one of the preceding claims, wherein the
additional data comprises padding.

17. A method according to any one of the preceding claims, wherein the cellular
30 communication system is a DVB network.

18. A method of broadcasting data in a cellular communication system including first and second cells comprising:

receiving data from a source,

producing a first data stream comprising said data in the form of a first series of bursts;

determining an additional data limit based on data transmission rates associated with the first and second cells such that, when an amount of additional data equal to said additional data limit is added to each burst in the series in a second data stream, first time intervals between bursts in the first data stream when broadcast in the first cell are equal to second time intervals between corresponding bursts in the second data stream when broadcast in the second cell;

if said additional data limit is less than or equal to zero, producing a second data stream comprising the series of bursts;

if said additional data limit is greater than zero, producing a second data stream comprising a series of modified bursts, wherein each burst comprises said data and an amount of additional data that is less than or equal to the additional data limit.

19. An apparatus for use in a cellular communication system including first and second cells, comprising:

receiving means operable to receive data from a source;

means for producing a first data stream for transmission in the first cell, the first data stream comprising said data in the form of a series of bursts;

means for producing a second data stream for transmission in the second cell, wherein the second data stream comprises the series of bursts and is configured so that, when the first and second data streams are broadcast in the first and second cells respectively, start times of bursts in the second data stream are synchronised with start times of corresponding bursts in the first data stream.

20. An apparatus according to claim 18, operable so that the second data stream is configured in accordance with first and second data transmission rates associated with the first and second cells respectively.

21. An apparatus for use in a cellular communication system comprising first and second cells comprising:

receiving means operable to receive a data stream from a source, said data stream comprising a series of data bursts;

5 means for determining an additional data limit on the basis of first and second data transmission rates associated with the first and second cells such that, when said an amount of additional data equal to said additional data limit is added to each burst in the series in the first data stream, start times of bursts in said data stream when broadcast in the first cell are synchronised with start times of
10 corresponding bursts in a second data stream broadcast in the second cell;

means for multiplexing the series of data bursts with bursts of additional data to produce a modified data stream in the event that the additional data limit amount is greater than zero, wherein each burst of additional data comprises an amount of additional data that is less than or equal to said additional data limit.

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22. An apparatus according to claim 19, 20 or 21, configured so that said amount is equal to said additional data limit.

23. An apparatus according to any one of claims 19 to 22, configured to
20 synchronise the start times so that the transmissions of corresponding bursts in the first and second cells begin simultaneously.

24. An apparatus according to any one of claims 19 to 22, configured to synchronise the start times so that there is a fixed time period between the start
25 time of a burst in the first cell and the start time of a corresponding burst in the second cell

25. An apparatus according to any one of claims 19 to 24, configured to interleave additional data with said data in each burst in the series.

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26. An apparatus according to any one of claims 19 to 24, configured to append an additional burst comprising said amount of additional data to each burst in the series.

27. An apparatus according to claim 26, further configured so that start times of said additional bursts when broadcast in the second cell are synchronised with start times of corresponding bursts of additional data broadcast in a third cell.

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28. An apparatus for use in a cellular communication system including first and second cells, comprising:

a receiver operable to receive data from a source;

10 a first data stream generator configured to produce a first data stream for transmission in the first cell, the first data stream comprising said data in the form of a series of bursts;

a second data stream generator configured to produce a second data stream for transmission in the second cell, wherein the second data stream comprises the series of bursts and is configured so that, when the first and second data streams are
15 broadcast in the first and second cells respectively, start times of bursts in the second data stream are synchronised with start times of corresponding bursts in the first data stream.

29. An apparatus according to claim 28, operable so that the second data stream
20 is configured in accordance with first and second data transmission rates associated with the first and second cells respectively.

30. An apparatus for use in a cellular communication system comprising first and second cells comprising:

25 a receiver operable to receive a data stream from a source, said data stream comprising a series of data bursts;

a burst rate adjuster configured to determine an additional data limit on the basis of first and second data transmission rates associated with the first and second cells such that, when said an amount of additional data equal to said additional data
30 limit is added to each burst in the series in the first data stream, start times of bursts in said data stream when broadcast in the first cell are synchronised with start times of corresponding bursts in a second data stream broadcast in the second cell;

a multiplexer arranged to multiplex the series of data bursts with bursts of additional data to produce a modified data stream in the event that the additional data limit amount is greater than zero, wherein each burst of additional data comprises an amount of additional data that is less than or equal to said additional data limit.

31. An apparatus according to claim 28, 29 or 30, configured so that said amount is equal to said additional data limit.
32. An apparatus according to any one of claims 28 to 31, configured to synchronise the start times so that the transmissions of corresponding bursts in the first and second cells begin simultaneously.
33. An apparatus according to any one of claims 28 to 31, configured to synchronise the start times so that there is a fixed time period between the start time of a burst in the first cell and the start time of a corresponding burst in the second cell
34. An apparatus according to any one of claims 28 to 33, configured to interleave additional data with said data in each burst in the series.
35. An apparatus according to any one of claims 28 to 33, configured to append an additional burst comprising said amount of additional data to each burst in the series.
36. An apparatus according to claim 35, further configured so that start times of said additional bursts when broadcast in the second cell are synchronised with start times of corresponding bursts of additional data broadcast in a third cell.
37. A communication system comprising:
a receiving device;
a first network; and
an apparatus according to any one of claims 19 to 36.

38. A communication system according to claim 37, wherein said first network is a DVB network.

5 39. A communication system according to claim 37 or 38 when comprising an apparatus according to claim 24, 25, 35 or 36, wherein the receiving device is configured to selectively receive a modified series of bursts by suspending data reception during a time slot associated with the series of bursts so that the additional bursts are not received.

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40. A communication system according to claim 37, 38 or 39, wherein the receiving device is configured to receive data from the first network and to enable telephone communications via a second network.

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